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ABSTRACT

This study examined the effects of functional communication patterns on interpersonal attraction, using a ten-category system of interaction analysis. Eight undergraduates were randomly selected and assigned to four unacquainted male-female pairs. After completing a physical attraction measure of their partners in the pairs, members of two pairs were instructed to get acquainted and conduct an ordinary conversation on any topic for fifteen minutes, while members of the other two pairs were asked to complete a task that required bilateral agreement. All subjects completed posttest attraction measures at the end of the fifteen minutes. The results show that males tend to be task oriented and to play a more dominant role in task conditions, while females tend to engage in more interaction maintenance behaviors in both task and non-task conditions. Attraction measures were higher in the "no task" condition, and task participants tended to decrease their attraction ratings from pretest to posttest measures. It is concluded that the devised category system was useful, that a relationship exists between functional (task-oriented) responses and interpersonal attraction, and that sex role stereotyping affects attraction and interaction. (RL)

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THE INFLUENCE OF FUNCTIONAL COMMUNICATION PATTERNS ON INTERPERSONAL ATTRACTION

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Abstract

This study focuses upon the effects of functional communication patterns on interpersonal attraction. A ten category system of interaction analysis was used to content analyze interactions between males and females in task and no task dyads. Statistical analysis revealed strong relationships between the categories and attraction measures. The research demonstrates the viability of the category system and the interrelatedness of communication patterns and interpersonal attraction.

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The Influence of Functional Communication Patterns on Interpersonal Attraction

Interpersonal attraction is one of the most widely researched social phenomena. Huston (1974) catalogues the findings of almost fifty years' research in this area. Virtually every theoretical orientation in social psychology has attempted to explicate the attraction phenomena within their own theoretical bounds (Huston, 1974). Past research has demonstrated a relationship between attraction and other social variables: physical appearance (Berscheid & Walster, 1972), attitude similarity (Griffitt, 1969), social roles (Bernard, 1964), and social rewards (Lott & Lott, 1974). Not until recently, however, has serious attention been focused on the functional aspects of the communication process upon interpersonal attraction in the simplest social unit, the dyad. Past attempts to analyze the functional moment-to-moment interaction between social interactants has been confined almost exclusively to the small group setting (Bales, 1950; Skinner, 1957, 1972; McLeish & Martin, 1975). The theoretical foundations for the study of interpersonal communication by identification and classification of functional behaviors are based in linguistic theory and social reinforcement theory. The study of functional moment-to-moment interaction units and its linguistic basis is expressed by William Paisley when he argues that encoding behavior (either verbal or nonverbal) is characterized by purposive symbol selection and patterning which is done with the expectation

that the pattern will be perceived and used in some way by others (Paisley, 1969). A functional analysis model is further supported by social reinforcement theory. Reinforcement theorists have demonstrated a relationship between the nature of interaction responses and the emission of related interaction responses from others based upon the reward-punishment valance of the initial interaction unit (McLeish & Martin, 1975).

The purpose of this research is to determine the nature and strength of the function and frequency of unitized interaction responses within a dyadic communication setting on interpersonal attraction. An experimental design which attempts to control other related variables (i.e. physical attractiveness, attitudes, and social roles) should generate data indicating the efficacy of both the research orientation and attraction determinants.

Method

Subjects. Subjects were eight undergraduate volunteers enrolled in the introductory course of either Interpersonal Communication or Public Speaking at Indiana University. Male and female subjects were randomly selected and assigned to dyads. Four dyads of one unacquainted male and female were created.

Procedure. Subjects were instructed to arrive at two different locations and wait. The experimenter met and introduced the subjects and asked that they complete a five-item physical attraction measure. Two of the dyads were instructed to get acquainted and conduct an "ordinary" conversation on any topic for fifteen minutes. The other two dyads were given a task to

complete. The task, A Case Study of American Values, requires participants to individually identify five values and objects for inclusion in a time capsule and then reach consensual agreement on the values and objects to be included. All subjects were informed that they were being video taped and that the experimenter would return at the end of the fifteen minute period. No other instructions were given to the subjects. The dyads were video taped and observed by a team of coders through a one way mirror. At the end of the fifteen minutes, the experimenter returned and administered the post attraction measures.

Measures. The attraction measures were a combination of the three factors identified by McCroskey and McCain (1974) and the measure developed by Norton and Pettegrew (1975). These measures reflect the dominant attraction components found in the literature: physical attractiveness (Kleck & Rubinstein, 1975; Miller, 1970; Strobe, Insko, Thompson, & Laydon, 1971; Barocas & Karoly, 1972), liking (McCroskey & McCain, 1974; McKelvie & Mathews, 1976), and desire to work with another (Byrne, 1971; McCroskey & McCain, 1974; Norton & Pettegrew, 1975). The physical attraction measure was administered immediately after the subjects met and consisted of five items, each rated on a five point scale (from Strongly Agree to Strongly Disagree). The attraction posttest consisted of a total of fifteen items; five items on liking, five on work desireability, and the same five physical attraction items administered in the pretest. The additional items were also rated on the five point scale and are presented in Appendix A.

Interaction Analysis. The video taped interactions were

viewed by sets of three coders who had originally viewed the live interaction. Each dyad was observed and coded by a different set of three coders from a six person pool consisting of advanced communication students and one faculty member from Indiana University. Prior to the actual coding of the video tapes the coders were trained in the use of the category system. During the coding each coder was to record the most dominant type of response occuring within a three second period of interaction.[1] The basic unit of analysis in this research was the three second interval response. Each coder coded two dyads and was impaneled with at least one different coder for each dyad observed. The coders were not allowed to discuss their evaluations during the coding process. The experimenter stopped the video tapes every three seconds to insure that the coders were coding the same interaction responses. The "pause" mode on the video playback unit allowed three second stop-action without loss of any of the taped interaction.

Category System. The category system was developed by McLeish & Martin (1975) and is presented in Table 1. The system consists of ten response categories: Mands, Tacts, Extended Tacts, Echoics, Intraverbals, Dominant Control Autoclitics, Negative Affective Autoclitics, Informative Autoclitics, Submissive Control Autoclitics, and Positive Affective Autoclitics (McLeish & Martin, 1975).

Insert Table 1 about here

Table 1*

Category	Definition
1. Mand	A verbal operant in which the response is reinforced by a characteristic consequence.
2. Tact	A verbal operant in which a response of given form is evoked by the presence of a particular object or event.
3. Extended Tact	A verbal operant in which a response is generated by physical properties of objects or events where the association between the speaker's behavior and the physical properties is not commonly reinforced.
4. Echoic	A verbal operant in which the response is under the control of verbal stimuli such that the response has the same properties of the stimulus.
5. Intraverbal	A verbal operant in which the response is thematically related to the verbal stimulus.
6. Dominant Control Autoclitic	A verbal operant which calls attention to the speaker or what he is saying.
7. Negative Affective Autoclitic	A verbal operant which indicates a negative emotional response to what has been said.
8. Informative Autoclitic	A verbal operant which clarifies or alters a given communication without any indication of emotion.
9. Submissive Control Autoclitic	A verbal operant which indicates passive acceptance.
10. Positive Affective Autoclitic	A verbal operant which indicates a positive reaction to what is being said.

* From (McLeish & Martin, 1975)

These categories represent an expansion and modification of Skinner's (1957) classification system. The category system has the advantage of providing the experimenter with an ongoing picture of what is happening in an interaction. Further, the system examines the functional nature of the interaction units rather than the semantic or structural properties of a particular unit. McLeish and Martin (1975) contend that examination of the functional behavioral unit allows the experimenter to analyse the interaction without dependence upon rigid norms. McLeish and Martin (1975) indicate that functional categories provide flexibility regardless of the variable context. This study does not attempt to use the category system to determine the causal sequences responsible for emitted responses. Rather, this investigation seeks to determine the response patterns and types emitted in mixed sex/task and no task dyadic interactions.

Results

Attraction Measure. A preliminary intercorrelation of the fifteen item attraction measure was done to determine whether or not the measure actually responded as previous studies suggest. With the exception of the Work With items a Pearson Product-Moment Correlation revealed that the five items within each cell of the measure had high internal consistency. An overall correlation of the fifteen items produced significant positive correlation coefficients for all but three items. Cronbach's Alpha rates the measure's overall reliability at .76; with the five Liking items at .87, with the five Physical Attractiveness items at .73, and with the five Work With items at .46. Since these

findings indicate that the fifteen item attraction measure is reliable in measuring interpersonal attraction, descriptive statistics and pairwise contrasts were computed for the experimental conditions.

Plotting of the mean totals for males versus females indicated that male ratings of females were higher than female ratings of males. Plots of the mean ratings of males' ratings of

Insert Figure 1 about here

females on the pre test of physical attraction had a mean of 7.75 while the female mean was 6.87. Both groups increased slightly on the post physical attraction items as shown in Figure 1. The post test Liking and Work With items reflected the same basic level distinctions between the male and female ratings. Plots of the means for the task versus the no task dyads indicated that the two groups were within .4 of each other on the pre Physical Attractiveness items, but the no task groups' ratings on the post Liking and Work With items were appreciably higher than the task groups' ratings. As shown in

Insert Figure 2 about here

Figure 2, the mean difference between the two groups on the Liking items was 2.15 and on the Work With measure 1.5. The comparison of the plots for males versus females within task conditions yielded differences in two areas. Figure 3 indicates that males and females in the no task dyads had slight rises in the Physical Attractiveness ratings from pre to post test; males--pre=4.25, post=4.62, females--pre=2.87, post=3.0.

Figure 1

Plot of Mean Totals for Males vs. Females Across All Attraction Measures

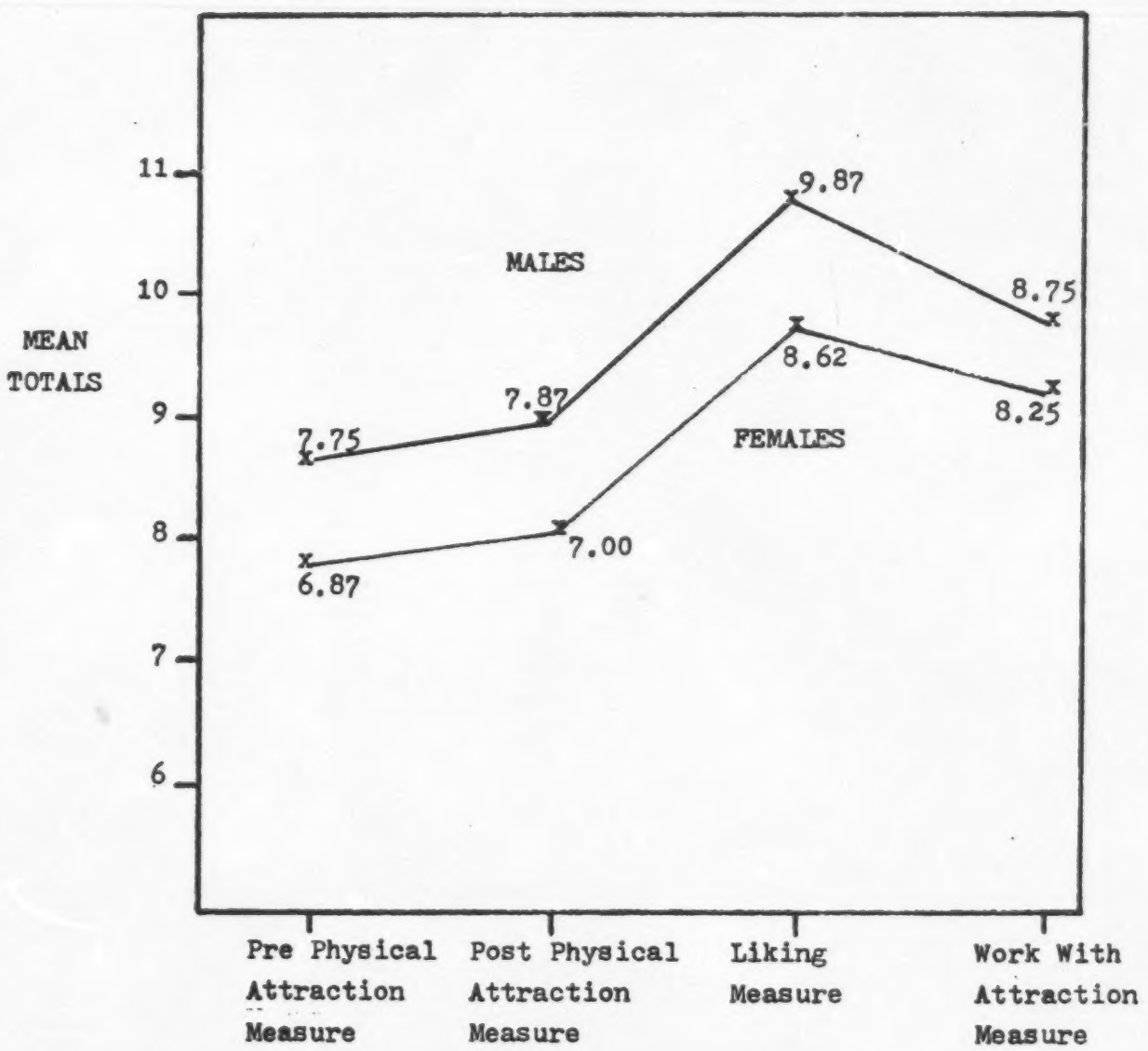
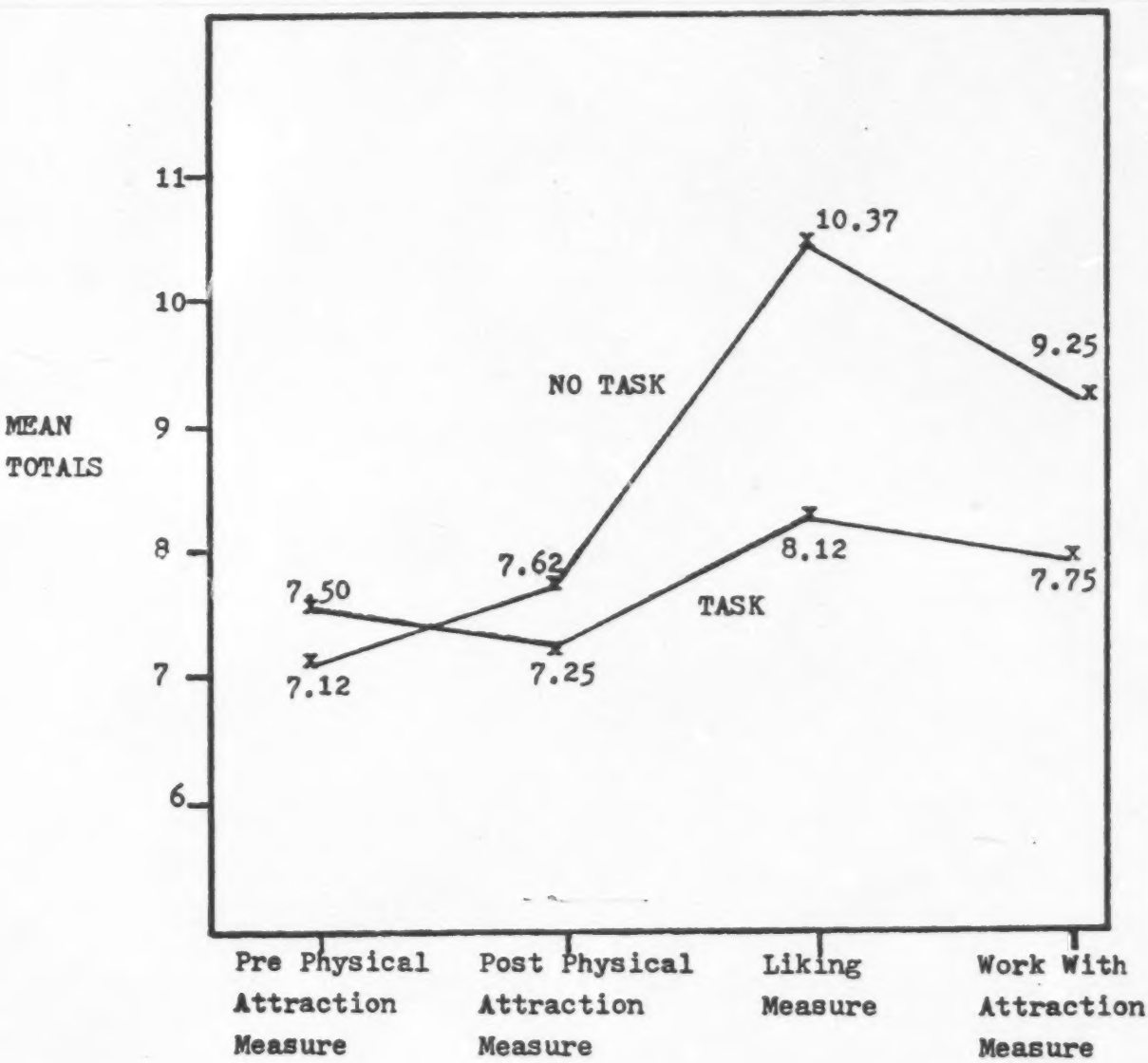


Figure 2

Plots of the Mean Totals for Task vs. No Task Dyads Across All Attraction Measures



Insert Figure 3 about here

These ratings are contrasted with the task dyads shown in Figure 4. Subjects in the task condition remained the same or slightly decreased their ratings of each other on the Physical Attractiveness measure between the pre and post tests. Females'

Insert Figure 4 about here

ratings remained at 4.0 while males' ratings dropped from 3.50 to 3.25. The second difference between task conditions was the drastic difference in the rating levels on the post Liking items. The mean male rating for the task dyads was 4.37 while the mean rating for the no task males was 5.50. A similar difference is observed between females between task conditions. Females in the no task dyads mean rating was 4.87 on the Liking items while the females in the task dyads had a mean rating of 3.75.[2]

Pearson Product-Moment correlation of the pre Physical Attractiveness measure with the three post measure factors over all conditions yielded significant positive correlations for the pre and post Physical Attractiveness measures for task, no task, males, females, males/task, males/no task, females/task, and females/no task. The composite total for the three cells within the post measure were highly negatively correlated for task/no task and males/females. No significant correlation existed between males and females on the composite post measure for either task condition. Application of a t-test for significant differences to all combinations of conditions revealed one significant t value ($\alpha = .05$) for task versus no task dyads, which tends to

Figure 3

Plots of Mean Totals for Males and Females Across All Attraction Measures-No Task Dyads

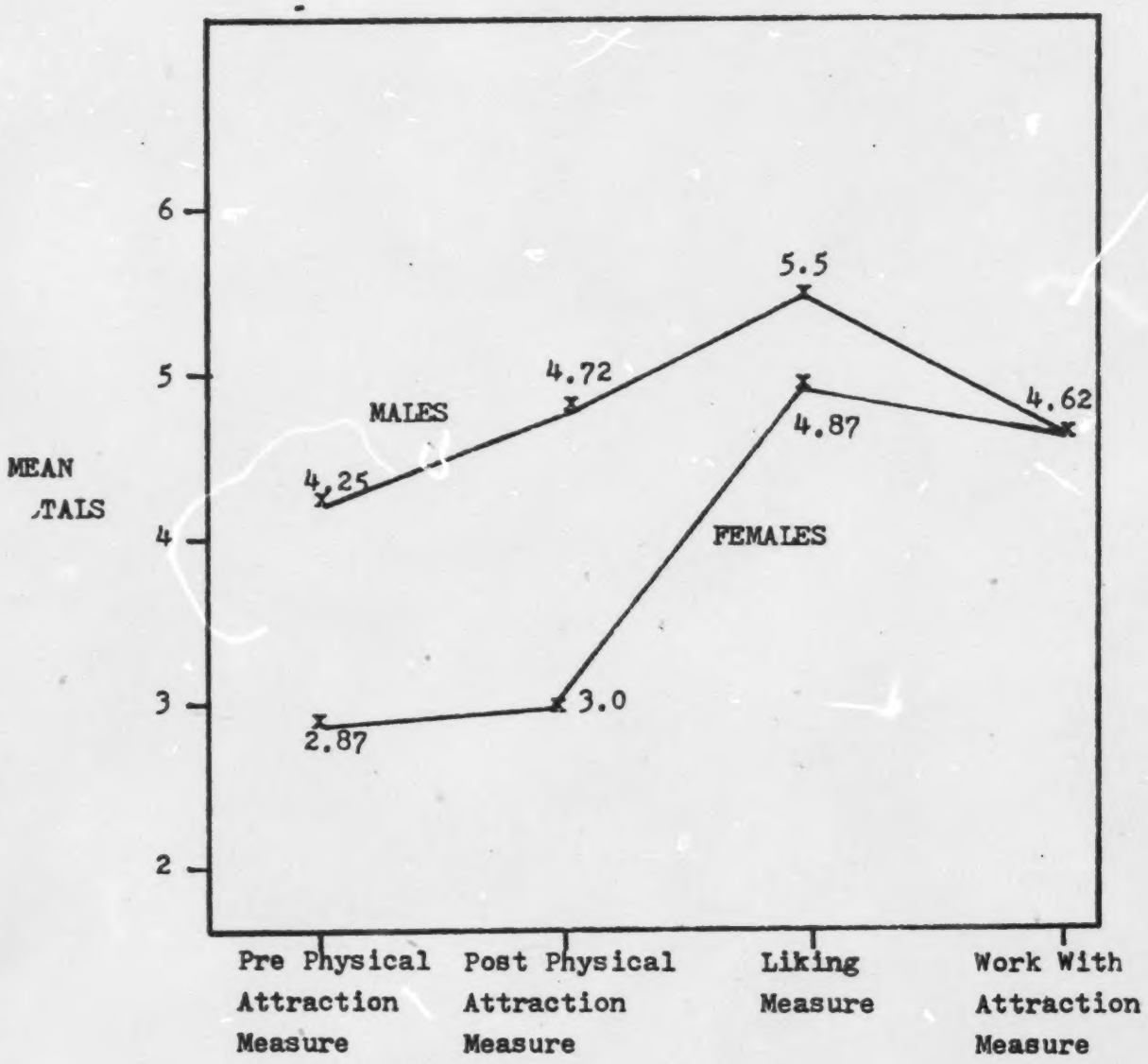
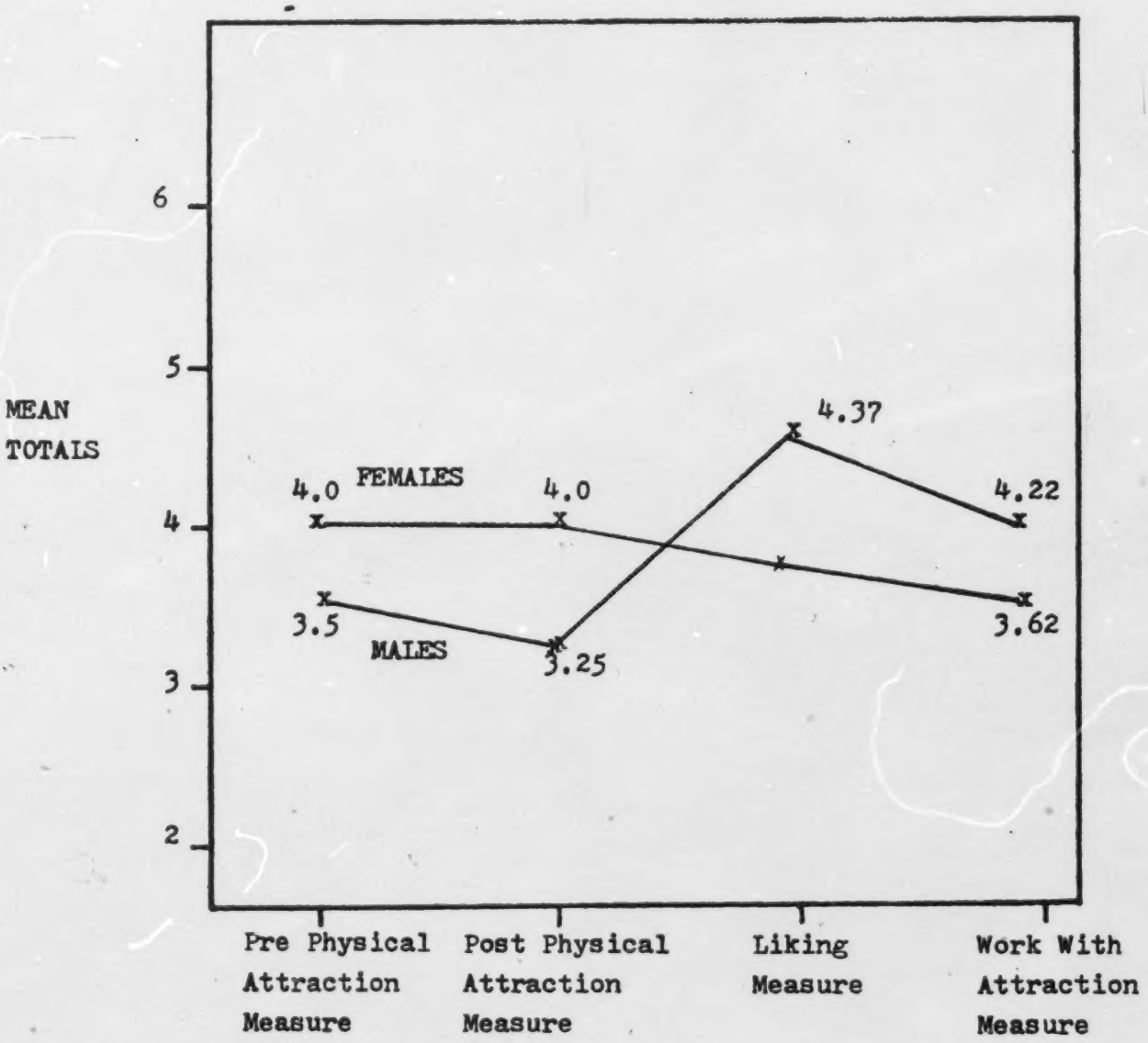


Figure 4

Plots of Mean Totals for Males and Females Across All Attraction Measures-Task Dyads



support the correlation analysis.

Category Data. A composite code sheet was developed for each interactant. The composite sheet was based upon at least two-out-of-three agreement among the coders. Those intervals failing to produce coder agreement were included in determining coder reliability, but were dropped from subsequent analysis. Coder reliability for each pair of coders per interactant produced a reliability range of .68 to .91.[3] Composite reliability was .91, .89, .90, and .87 for dyads one through four respectively. Coder reliability was considered acceptable for this research using Holsti's (1969) coefficients of composite reliability.

The category frequency data revealed three levels of category use; heavy, moderate, and infrequent. After adjusting the total number of three second intervals to equalize the number of responses analyzed for each interactant (adjustments were made for dyads finishing before fifteen minutes and intervals with no coder agreement; adjusted n=238) the following frequency data was produced: Heavy-Informative Autoclitic (671), Submissive Control Autoclitic (820); Moderate-Mands (102), Intraverbals (66), Dominant Control Autoclitics (95), Positive Affective Autoclitics (80); and Infrequent-Tacts (27), Extended Tacts (5), Echoics (25), Negative Affective Autoclitics (8). Due to the low usage of Extended Tacts and Negative Affective Autoclitics these categories were dropped from further analysis.

Differences in category usage between the experimental conditions were revealed using X^2 analysis. An overall X^2 analysis performed on eight categories revealed no significant relationship between or across categories (α=.01), confirming

the independence of the categories. X^2 analysis of the category data across task and sex conditions resulted in systematic differences between task and sex-by-task conditions. No systematic differences were revealed between all males and all females except in the Dominant Control Autoclitic category which males used more frequently. In the task versus no task analysis six

Insert Table 2 about here

of the eight categories were significantly different (3 at α=.05 and 3 at α=.01) as reported in Table 2. The grand X^2 for this comparison was significant at the .01 level and indicates that there was an overall significant difference between task and no task conditions.

In the X^2 analysis of sex-by-task conditions only one category was systematically different in usage between males and females in the no task dyads; use of the Submissive Control Autoclitic (α=.01). The grand X^2 for males versus females in no task dyads was, of course, not significant. Comparisons of category usage for males versus females in task dyads revealed four of the eight categories as significantly different (2 at α=.05 and 2 at α=.01)(See Table 2). The grand X^2 for this analysis was significant (α=.05).

Significant differences were produced by X^2 analysis of same sex-by-task comparisons. Females in task versus no task dyads differed significantly in four of eight categories (3 at α=.01 and 1 at α=.05). Of all X^2 analysis performed in this research, females in the task versus no task comparison produced a significant X^2 for the Mands category (See Table 2). The grand

Table 2

X^2 Significance Levels for Categories

Category	Task vs No Task	Males vs Females	Males vs Females No Task	Males vs Females Task	Females vs Females Task-No	Males vs Males Task
Mand	NS	NS	NS	NS	.05	NS
Tact	.05	NS	NS	NS	NS	.05
Extended Tact	Dropped	Dropped	Dropped	Dropped	Dropped	Dropped
Echoic	.05	NS	NS	NS	NS	.01
Intraverbal	.05	NS	NS	.01	.01	NS
Dominant Control Autoclitic	.01	.01	NS	.01	NS	.01
Negative Affective Autoclitic	Dropped	Dropped	Dropped	Dropped	Dropped	Dropped
Informative Autoclitic	.01	NS	NS	NS	.01	.01
Submissive Control Autoclitic	.01	NS	.01	.05	NS	.01
Positive Affective Autoclitic	NS	NS	NS	.05	.01	NS

X^2 for this analysis was significant at the .01 level. Males in task versus no task conditions produced significant differences in five of the eight categories (4 at α=.01 and 1 at α=.05). (See Table 2) The Mands, Intraverbals, and Positive Affective Autoclitic categories showed no systematic differences. The grand X^2 for males across task conditions was significant at the .01 level.

The high negative correlations across experimental conditions of the attraction measures and the significant t value for task versus no task groups on the attraction measures justifies analysis of the association between the category data and the attraction measures. Specifically, the differences between category usage and differences in attraction ratings are of interest. Freeman's Coefficient of Differentiation (θ) which describes the association between nominally and ordinally scaled data (Freeman, 1965) was used to determine the relationship between the attraction ratings and the category usage data.

Category by Attraction Measure Data. Application of the Coefficient of Differentiation (θ) to the frequency data and the attraction means yielded an estimate of the extent to which attraction may be predicted from the functional communication patterns (or visa versa). This analysis was executed for male, female, task, and no task data for each attraction measure against those categories found to be significant across at least three of the six X^2 analyses. Using Intraverbals, Dominant Control Autoclitics, Informative Autoclitics, and Submissive Control Autoclitics, θ was under 20% for all conditions, except within task dyads. In

task dyads θ=48% for the Physical Attractiveness measure, 47% for the Liking measure, and 49% for the Work With measure. In short, the content analysis system indicates that the Intraverbal, Informative Autoclitic, Dominant Control Autoclitic, and Submissive Control Autoclitic categories are functionally related to interpersonal attraction.

Discussion

The basic assumption underlying this research has been supported. The research data indicates that dyadic interaction can be analyzed using specific functional categories that are context sensitive. The specific categories used in this research did not yield the same even distribution reported by previous research (McLeish & Martin, 1975). Two possible explanations may be posited. First, the original category formulation had as its target, analysis of small group interaction; whereas this study deals with dyadic communication and its unique communication patterns. Second, the original study dealt with discussions of one hour or more (McLeish & Martin, 1975), while this research dealt with a fifteen minute discussion. The application to dyads and verbal analysis of shorter total times may disallow any evolutionary effects extended time and personnel may have on a discussion. In his original formulation Bales (1950) established the reality of this type of evolution and its effects upon the types of interactions within the communication context. Category independence and significant differences between dyads in category use support, in part, McLeish and Martin's (1975) original hypothesis; that the functional interaction units within interpersonal communication have a stimulus-response effect upon

the frequency and function of other interaction units. This research demonstrates dramatic differences between task and no task interactions and males and females with regard to the the types of interaction units employed. Statistical analysis reveals that interactions in task and no task dyads are significantly different in pattern. Males within task dyads more frequently engage in dominant control behaviors while females within these groups demonstrate submissive behaviors. In non task dyads female subjects exhibited more behavior variety with higher frequencies of information giving, positive reinforcements, and intraverbal responses. Males in non task dyads engaged in less dominant behaviors, more submissive and more information giving behaviors. These findings are consistent with previous research reporting that males tend to be task oriented and play a more dominant role in task conditions, while females tend to engage in more interaction maintainance behaviors in both task and non task conditions (Heiss, 1962; Wood, 1966; Black & D'Angelis, 1974; Bond & Vinacke, 1974). This finding lends further support to the contention that sex role stereotyping affects attraction and interaction (Bochner & Fitzpatrick, 1976; Seyfried & Hendrick, 1974).

The relationship between the attraction measures and the category system indicates the high impact of the interaction process on participant attitudes. The differences in type and frequency of responses revealed by the category data was met by corresponding differences in the attraction measures. Both males and females rated the other higher in the no task condition than

in the task condition. Dyadic interactants appear to respond positively toward others when the interaction is characterized by category balance. Analysis of the categories used during the no task condition indicates that females tend to use more Mands, Intraverbals, Informative and Positive Affective Autoclitics, while males balance this pattern with Extended Tacts, Echoics, Informative and Submissive Autoclitics. The major finding of this research is that a balanced interaction pattern is associated with high attraction between male and female interactants. These results may be interpreted in two ways. Males and females act in less rigid and role prescribed ways in no task contexts than in task contexts. This may be due to the influence of the task upon the interaction. In short, task may act to define the interaction options open to participants; task defines response patterns and, consequently, attraction. Alternatively, the difference in response types and frequencies and attraction between task and no task dyads may be due to differences in the initial physical attractiveness of the participants. Some attraction literature suggests that initial estimations of physical attractiveness influence other attraction variables (Miller, 1970; Barocas & Karoly, 1972; Curran and Lippold, 1975; Kleck & Rubenstein, 1975). The findings of this research do not support the latter supposition. Both task and no task interactants rated the physical attractiveness of their opposites initially at about the same level. Task participants slightly decreased their physical attractiveness ratings on the post measure while no task participants slightly increased their ratings. Significant differences between the two task conditions on the post Liking

and Work With items mitigates against Physical Attractiveness as the determinant of the final attraction ratings of the participants. This research further supports the findings of Holstein, Goldstein, and Bem (1971), Lowe and Goldstein (1970), and Mehrabian (1969) that types of interaction responses can influence liking between interactants.

Conclusion

Communication theorists have indicated that a legitimate area of inquiry for students of communication behavior is the effect(s) of communication on the attributions and attitudes of the interactants. One approach to this type of study is the analysis of the on-going functional responses of the communicators in an interaction. This research has demonstrated the viability of functional categories based upon a basic S-R model proposed by Skinner. A relationship between the type of functional responses used in dyadic interaction and attraction has been established. These findings imply a need for future research using this functional content analysis scheme and the need for reinterpretation of past findings which may have overlooked the influence of the types of functional responses generated within the experimental design.

Footnotes

[1]Previous research has established one second intervals as the ideal, however, one second intervals present mechanical problems for coding (Mcleish & Martin, 1975). Previous research using this coding system has established high correlations between one and three second intervals (McLeish & Martin, 1975).

[2]Due to the small number of subjects (N=4), no statistics are reported here. Statistics, however, were executed for heuristic purposes.

[3]Dyad I, for example, yielded three "percent of agreement" scores for the male interactant and three for the female interactant. These were respectively .70, .81, .68, .83, .84, and .86. These yielded a composite reliability of .91 for Dyad I.

Appendix I

Instructions to Subjects and Attraction measure used in this research.

"This is a study of some of your attitudes. Of course, there is no right answer for any statement. The best answer is what you feel is true of yourself. You are to respond to each question on the answer sheet according to the following scheme:

1	2	3	4	5
strongly agree	agree	undecided	disagree	strongly disagree

Remember, the best answer is the one which applies to you. No one but the experimenter will see your answers.

1. I don't like the way he/she looks.	1 2 3 4 5
2. If I want to get things done, I would depend on him/her.	1 2 3 4 5
3. I like him/her.	1 2 3 4 5
4. He/she is a pleasing conversationalist.	1 2 3 4 5
5. I think he/she is sexually attractive to members of the opposite sex.	1 2 3 4 5
6. I would like to have a friendly chat with him/her.	1 2 3 4 5
7. I could get a lot of things accomplished with him/her.	1 2 3 4 5
8. He/she is very sexy looking.	1 2 3 4 5
9. I think that he/she could be a friend of mine.	1 2 3 4 5
10. He/she has an attractive personality.	1 2 3 4 5
11. I would be willing to work with him/her on a task.	1 2 3 4 5
12. I find him/her very attractive physically.	1 2 3 4 5
13. I have confidence in his/her ability to get the job done.	1 2 3 4 5
14. He/she would be a good problem solver.	1 2 3 4 5
15. I think he/she is quite handsome/pretty.	1 2 3 4 5

In this research questions 1, 5, 8, 12, and 15 were administered as a pre test as these items constitute the Physical Attractiveness cell while items 3, 4, 6, 9, and 10 constitute the Liking cell, and items 2, 7, 11, 13, and 14 constitute the Work With cell.

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